

evaluation of the Virtual High School, Inc. (VHS), reported that "... teachers indicated that they were using new teaching or assessment approaches in their other courses (year 2, 61%; year 1, 55%). Both principals (62%) and superintendents (68%) also said that teachers used new teaching and assessment approaches in other courses" (Espinoza, Dove, Zucker, & Kozma, 1999, p. 26). Similar kinds of impact are the subject of informal conversations at virtual school conferences and meetings.

One study on this phenomenon was reported by Lowes (2005), who considered the question as part of a larger study of teacher design and teaching practices at VHS, the same large virtual school that had been the subject of the 1999 evaluation by Espinoza, Dove, Zucker, and Kozma. Lowes first interviewed six VHS teachers to create questions for an extensive online survey. Two items in a large battery of questions focused specifically on the pedagogical impact on FTF teaching strategies, asking teachers to select from 40 teaching practices they felt had changed as a result of virtual teaching experiences. Additionally, the survey asked four open-ended questions that focused on types of instructional changes.

Lowes (2005) found that three quarters of teachers who taught in both virtual and FTF courses reported that their virtual experiences had a positive impact on their in-person teaching strategies. When asked to rate on a scale of 1 to 5 (1 = no changes, 5 = major changes) each of the 40 possible revisions to teaching strategies, teachers tended to give higher ratings to adding peer reviews, eliminating poorly designed lessons, redesigning lessons or adding new ones, and providing more detailed instructions. In response to the open-ended questions, some teachers also indicated using more strategies for increasing class participation, requiring more independent learning, using questioning techniques, and encouraging greater metacognition and reflection.

A statewide evaluation of a virtual school system offered an opportunity to further explore this kind of transfer and to add to our knowledge of the types of impact, both pedagogical and other, that teachers perceive. As with personnel at other virtual schools, directors of this program had heard comments from their teachers about the beneficial effects of virtual teaching on in-person classroom teaching and asked that this issue be included in the evaluation. The authors used a computer-aided qualitative approach to gauge the extent to which the phenomenon reported by Espinoza, Dove, Zucker, and Kozma (1999) and Lowes (2005) occurred in other virtual school settings. We also designed the study to allow the possibility of other types of perceived impact in addition to that of improved teaching strategies, as reported in past studies. We included open-ended questions with this focus in the online surveys and in-person focus group interviews planned for the evaluation.

## Methodology

### Study Participants

The teachers included in the study were 65 attendees at a state-sponsored educational technology conference who were also attending required training for the state's virtual school instructors. Attendees constituted almost half of the program's 147 virtual teachers who were active in the virtual school program at that time. As with most statewide virtual schools, all the teachers working for this state's virtual school program are state certified in the content area in which they teach. About 90% of the program's instructors are full-time teachers in the state's "brick and mortar" schools in addition to teaching one or more courses in online or video-based formats.

### Study Setting

The virtual school program itself is a relatively new one. It began offering state-sponsored virtual courses in 2005, but as of the summer of 2008, it already had 170 schools sponsoring virtual courses, which constitutes about 44% of the high schools in the state. The program offers more than

70 courses in a variety of content areas and grade levels, either through an interactive video conferencing (IVC) system that the state put into place at selected schools or via a Web-based course management system (CMS). When resources can be put into place to allow it, the ultimate goal of the program is for all courses to have a blended approach using a combination of these platforms. Some Web-based or blended courses currently use collaborative tools such as Elluminate to promote greater interaction.

### Study Procedures

In light of the dramatic differences in virtual program maturity, pedagogical methodologies, types of teacher training, and virtual teaching experience, the researchers decided to use a more open-ended approach to data collection than the one in Lowes' 2005 study. Rather than using a pregenerated set of types of impact, we generated an ethnographic account of teacher beliefs and perceptions in this area through a two-stage approach to qualitative data collection: online surveys followed by in-person focus groups. This two-stage approach allowed for initial analysis that could be further explicated in data from subsequent conversations in order to better provide a thick description of teacher perceptions (Berg, 2007).

Teachers attended a series of training sessions aimed at expanding proficiency with the state's virtual program technologies and procedures. At the beginning of each session, teacher attendees were invited to complete an online version of five question sets (see Appendix), implemented through an account with a commercial online testing and survey system. One set of questions focused on the possibility of "reverse impact" by asking teachers to address the questions: "Has your experience teaching at a distance affected your traditional classroom teaching? If so, in what ways has your traditional teaching been affected?" Computers were available for each teacher to complete an individual survey, and we received responses from 52 of the teachers in attendance, for an 80% return among attendees. Teachers who did not complete surveys were new to the virtual school system and indicated they did not have sufficient experience to provide feedback.

The following day, evaluators held a series of eight focus groups with a total of 28 teachers in rooms allocated by the state department for this purpose. Focus group members had also completed the online surveys, so teachers were encouraged to expand on initial comments and offer a richer explanation of their perceptions than that provided on surveys. Although some of the survey observations were especially informative, most tended to be brief and offered few details to supplement a "yes/no" confirmation. Thus, focus groups yielded additional helpful information. Focus group proceedings were recorded, and evaluators took extensive summary notes to allow for later interpretive analysis (Berg, 2007).

### Analysis Procedures

The authors first reviewed responses for evidence that would gauge the extent of the perceived impact and analyzed them subsequently to identify specific types of impact. To establish patterns in teacher data, we subjected survey responses to content analysis using a constant comparative procedure (Dye, Schatz, Rosenberg, & Coleman, 2000; Lincoln & Guba, 1985; Patton, 2002). Two different coders viewed results separately, and each generated an analysis on the categories of perceived impact. They compared their analyses and came to agreement on general findings, ways to resolve discrepancies, and how to characterize results as to categories.

## Findings: Perceived Impact of Online Experience on FTF Teaching

### Overview

A straightforward count and analysis of survey responses enabled a conclusion about the extent of the perceived impact within this group of teachers.